Question Number	Scheme		Marks
2(a)	$10\times7.8\div1.2$ / $10\times7.8\times\frac{5}{6}$ / $\frac{1}{6}\times10\times39$	$5\times3.6\div1.2$ / $5\times3.6\times\frac{5}{6}$ / $\frac{1}{6}\times5\times18$	M1
	(Time 45-55 freq =) **65**	(Time 55-60 freq =) **15**	A1
	$260-"65+180"=$ **15**	$260-"15+180"=$ **65**	B1ft
			(3)
(b)(i)	$\left[\text{Mean}=\frac{11\,087.5}{260}\right]$ $=42.644\ldots$ awrt **42.6**		B1
			(1)
(ii)	Standard deviation $=\sqrt{\frac{505718.75}{260}-\left(\frac{11087.5}{260}\right)^2}=11.249\ldots(s=11.27...)$ awrt **11.2**		M1 A1
			(2)
(c)	Median $=(30)+15\times\frac{130-20}{145}$ or $(45)-15\times\frac{(165-130)}{145}$		M1
	$=41.379\ldots$ awrt **41.4**		A1
			(2)
(d)	Positive (skew) since the median is less than the mean		B1
	or Positive (skew) since the histogram has a "tail" on the right oe		
	(Allow use of quartiles if Q_1 =[34.65…] and Q_3 =[49.61…] are correct to 2sf)		**(1)**
(e)	Number of people $=\frac{6}{15}\times145+20$ [= 78]		M1
	Probability being less than 36 seconds $=\frac{78}{260}$ $=0.3$ o.e.		A1
	$\left(\frac{"78"}{260}\right)\times\left(\frac{"77"}{259}\right)\times\left(\frac{"76"}{258}\right)$; $=\frac{209}{7955}$ or 0.02627… awrt **0.0263**		M1;A1
			(4) **Total 13**

	Notes	
(a)	M1 for a correct expression for one frequency A1 for 65 or 15 B1 for 15 or 65 ft one of their incorrect frequency or their "180"	**Look in table in QP** If table and text disagree take table.
(b)(i)	B1 for awrt 42.6 [Beware use of units e.g. 42.6s which looks like 42.65] (Allow $\frac{4435}{104}$)	
(ii)	M1 ft their mean. Must have the square root. [Allow use of their Σft^2 >300 000 here] A1 for awrt 11.2 [but allow 11.25] (allow s = 11.3) [Answer only 2/2]	
NB	[Beware correct formula with mean = 42.64 gives 11.265 = 11.3 (3sf) but scores M1A0]	
(c)	M1 for correct use of linear interpolation to find the median ignore the end points (may be implied by correct answer). NB may work up or down and allow use of 130.5 A1 for awrt 41.4 (Use of 130.5 gives 41.43…) [Again beware of units 41.4s etc]	
(d)	B1 positive (skew) with either reason[No ft for –ve skew if Q_2 > mean]. Ignore use of mode and condone "positive correlation" If $\lvert Q_2-\bar{t}\rvert<1$ allow mean close to median so no skew or symmetric.	
(e)	1st M1 for a correct method for finding the number of people. [Correct expression or 78] 1st A1 for the correct probability of 0.3 or exact equivalent 2nd M1 for use of their probability without replacement (condone with replacement) Score this mark for p^3 where p = their 0.3 from any method e.g. use of normal etc 2nd A1 for awrt 0.0263	